

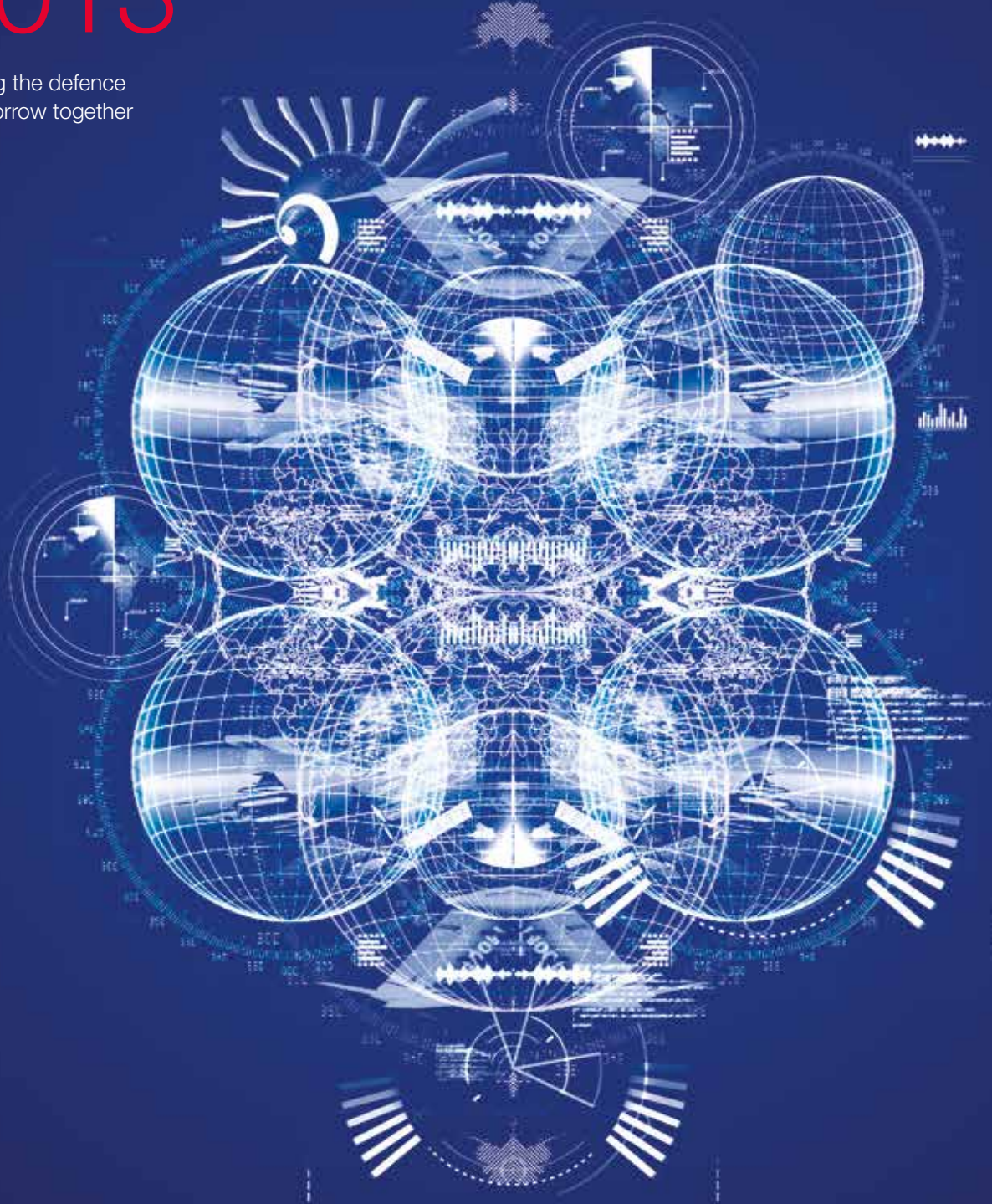


Liberté • Égalité • Fraternité  
RÉPUBLIQUE FRANÇAISE

MINISTÈRE  
DE LA DÉFENSE

# Activity report 2013

Building the defence  
of tomorrow together



DIRECTION GÉNÉRALE DE L'ARMEMENT

# Activity report 2013

Building the defence  
of tomorrow together

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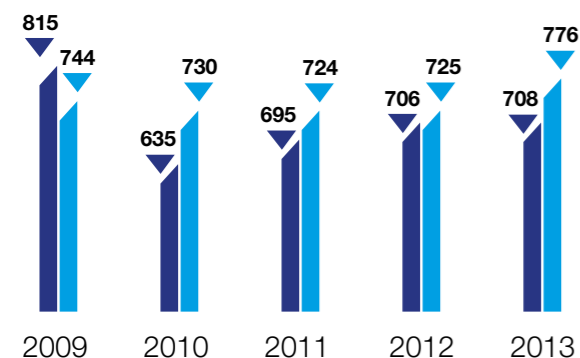
# DGA missions and key figures

## Preparing for the future

€776 M

■ commitments ■ payments

In million of euros  
R&T studies

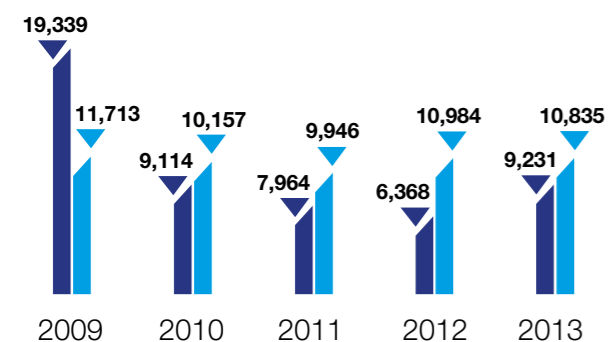


## Equipping the Armed Forces

€10,835 M

■ commitments ■ payments

In million of euros  
DGA share of LOLF programmes P146, P152 and P178



## Promoting exports

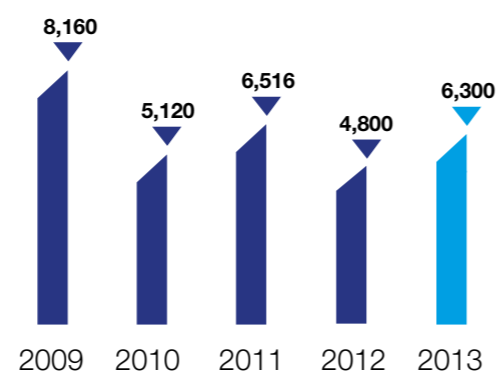
(estimation)

€6,300 M

■ export orders  
■ estimation as at 30 January 2014.

The final amount of orders will be published, as in every year, in the Report to Parliament on defence equipment exports from France in 2013.

In million of euros



# Editorial

2013 ended in a rush in operational terms, with our forces engaged in several theatres of operations and the expeditious deployment of certain weapon systems like the REAPER in the Sahel. The DGA assisted our armed forces at every instant to guarantee their access to capabilities meeting the highest world standards. That is our core mission.

2013 saw the creation of a new frame of reference for our defence, with the *French White Paper on Defence and National Security and the Military Programming Act (Loi de programmation militaire - LPM)* promulgated last December. The DGA played a key role in preparing them, by proposing an equipment policy adapted to the new formats of the armed forces and to the set budget guidelines. This ambitious LPM will maintain the proficiency of our technological and industrial defence base and so preserve our sovereignty and operational advantage. These industrial skills, just like the DGA's expertise, are a unique asset in Europe, which should be developed more than ever now. This is a priority! The budget allocated to innovation, the largest in Europe, should keep us one step ahead.

2013 also marked the successful passage of some major technical milestones on our military equipment programmes, some were even historic. I am thinking in particular of the delivery of the first A400M in the presence of the Prince of Asturias and the Minister of Defence in Seville, of the launch of the FREMM "Provence" frigate, of the commissioning of the SNLE Le Vigilant after its adaptation to the M51, or again of the delivery of the 500th VBCI and the 1<sup>st</sup> FELIN-equipped VBCI.

Following the LPM guidelines, we have continued our efforts to modernize our defence system in the priority areas of intelligence, cyber-defence or combat engagement. We therefore started the development of the ROEM CERES satellite system, the renovation of the ATL2, the F3-R standard of the RAFALE or again the MMP missile. The DGA also invested in its expertise and test capabilities, notably with the P4 laboratory inaugurated by the Minister of Defence in October 2013, which places the ministry at the centre of the system to fight against the NRBC threat.

Once again the DGA played a major role in the SME Defence Pact, now transposed into a ministerial instruction since 21 March 2013. This forward-looking policy was illustrated by the Minister of Defence at the very successful second edition of the DGA Innovation Forum at École polytechnique.

Our export orders improved significantly by comparison with the previous year. The total amount will exceed 6 billion euros. These results are a sign of the excellence and the maturity achieved by the French offer and the "combat proven" demonstration of our systems in theatres of operations. Supporting exports, one of the DGA's three missions, has become more than ever a necessity to help our industry find outlets for growth.

With a growing level of investment in the equipment of armed forces and over twenty new programmes to launch in the years ahead, the DGA's project management skills and technical expertise will once again be an essential component for all of us to achieve the objectives of this LPM.



"The DGA industrial skills and expertise are unique resources to develop."

Laurent Collet-Billon  
Chief Executive of the Defence Procurement Agency



# DGA events in 2013

## Technological innovation, one step ahead

21 November 2013

### 2<sup>nd</sup> edition of the DGA Innovation Forum



Jean-Yves Le Drian, French Minister of Defence, with the Chief Executive of the Defence Procurement Agency, at the 2<sup>nd</sup> DGA Innovation Forum.

"If we know how to rapidly turn it into an industrial product, innovation sets in motion a virtuous circle that creates value, jobs, and boosts our domestic growth and ultimately our morale" said the Chief Executive of the Defence Procurement Agency, Laurent Collet-Billon, when he opened the second edition of the DGA Innovation Forum on 21 November 2013 at École polytechnique.

Under the presidency of Jean-Yves Le Drian, Minister of Defence, "the major Defence and Innovation event" attracted some 800 players who contribute to the strength of French innovation: SME, mid-sized companies, research laboratories, academics, defence manufacturers, institutional partners

from defence and civil sectors. Over one hundred innovative projects, live demonstrations - including some European firsts - were presented on nine stands.

The DGA's measures to support innovation cover a broad spectrum, ranging from the most fundamental research to the application, not to mention the stages of gestation and completion of demonstrators. The aim is to meet Defence or dual needs (interesting civil and military applications) spontaneously proposed by companies and laboratories.

This day was also the occasion to review the SME Defence Pact launched during the first edition, where the DGA plays a key role, and the Minister of Defence praised the first concrete results.

24 October 2013

### The DGA stands guard against the biological threat



Inauguration of the P4 laboratory of the DGA NRBC Control by Jean-Yves Le Drian, with Laurent Collet-Billon and Françoise Lévêque, Director of DGA NRBC Control.

"The *White Paper on Defence and National Security* firmly pointed out the absolute necessity of maintaining our technological lead in the field of protection against the NRBC (nuclear, radiological, biological, chemical) risk"

Mr Jean-Yves Le Drian  
French Minister of Defence

The first P4 laboratory of the Ministry of Defence was designed and settled at the DGA NRBC Control centre in response to this need.

Jean-Yves Le Drian inaugurated this highly secure laboratory on 24 October 2013. The laboratory was designed to prevent biological proliferation, develop our understanding of threats and evaluate detection and decontamination equipment.

17-23 June 2013

### The DGA at the 50<sup>th</sup> Paris Air Show at Le Bourget

Exhibitors listed by GIFAS

2,215  
from 44 countries

Official foreign delegations

151  
from 78 countries and 3 international organizations (OCCAR, NATO and EU)



Defence institutional stand at the 50<sup>th</sup> Paris Air Show.

Number of visitors (professionals and general public)

139,273  
professional visitors  
176,299  
"general public" visitors.

The Paris Air Show was held at Le Bourget from 17 to 23 June 2013.

The Ministry of Defence used the logo "Operational together" on its stand.

The stand had two exhibit areas, internal and external, so that the DGA could present iconic achievements of its activity. Alongside examples of its expertise or its partnership with armed forces through its military equipment programme, it also exhibited many innovations resulting from its support for SMEs, some of which are global or European firsts (microsensors ChronoMEMS, ASAP non-pyrotechnic actuators).

### 2013 PRIZES

**SCIENCE AND DEFENCE PRIZE** awarded to **Christian Bordé**, from the Academy of Sciences, for his work on clocks and atom interferometers.

### 2013 DGA THESIS PRIZE

On 21 November, Jean-Yves Le Drian, Minister of Defence, and Laurent Collet-Billon, Chief Executive of the Defence Procurement Agency, gave the "DGA thesis prize" to three research scientists.

**Mickaël BOUVET**, for his work on "the study of RNA modifying enzymes involved in the replication of flaviviruses (responsible for diseases like yellow fever) and coronaviruses (implicated in SARS, for example)".

**Camille COUPRIE**, for her thesis developing methods of testing to improve performance in the extraction of items of interest (object, face, etc.) in images.

**Delphine DUMAS**, for her thesis on retina curves that led to a global breakthrough: curved sensors, just like the retina in our eyes.

20-28 March 2013

### "Opening up to the world"

It was under this ambitious theme that the 13th Interservice seminar for military academies (SIGEM) opened its doors to 600 officer cadets from 20 to 28 March 2013. The seminar covered the major defence issues, including those related to the military equipment field.

The DGA showed the cadets its investment in research and support for SMEs in a concrete manner, by presenting some technological innovations in the fields of biology and optronics. It also demonstrated its technical expertise with the presentation of test aircraft from DGA Flight Tests. Finally, to conclude the seminar, a round table on "Understanding technological challenges" provided the opportunity to explain the DGA's role in developing military equipment programmes and preparing the future of defence systems.

8 March 2013

### Women take pride of place



Left: Delphine, civil engineer test pilot. DGA Flight Tests - Cazaux.  
Right: Stéphanie, test manager. DGA Missile Tests - Biscarrosse.

A temporary exhibit of twenty portraits of women in Defence travelled around France in 2013. Two of these women represented the DGA: a test manager from DGA Missile Tests and an engineer test pilot from DGA Flight Tests.

Inaugurated by Jean-Yves le Drian, Minister of Defence, this exhibit began its journey in Paris in the summer on the railings of the Ministry, boulevard Saint-Germain. On that occasion the Minister recalled that "every day these women demonstrate their skills, their goodwill and their support for the institution (...) that these skills are a precious asset for the Ministry".

# Informed defence investor



Pegase: innovative mobility solution on land and in the air. First French "flying car".

## The DGA prepares for the future

As informed defence investor, the DGA prepares for the future. It pays particular attention to the development of the Defence Technical & Industrial Base (DTIB) in France. The DTIB encompasses the necessary technological and industrial skills, in France and in Europe, for the development, production and use of current and future weapons systems.

With the Joint Staff, the DGA maintains the capability consistency essential to the armed forces, in order to have a structured view of equipment needs and solutions over time. This year the preparation of the *Military Programming Act* (Loi de programmation militaire - LPM) 2014-2019 was the decisive framework for the planning of defence equipment operations and prioritizing preparatory studies. Considerable work has been done to preserve the consistency of the armed forces' capability model and the robustness of the French DTIB, guarantor of our sovereignty.

The DGA invested 708 million of euros in upstream studies to support the critical skills of the French Defence Industry. Among other things, we can cite the launch of additional work aimed at preparing the renovation of the SCALP-EG (Storm Shadow) missile, as well as demonstration of a modular

optronics pod, designed to improve the performance of the image intelligence chain for any type of aerial platform.

### Other results deserve mention:

- the sea trials of naval drones to locate, identify and neutralize mines, as well as towed sonar trials, conducted in the context of the Future Anti-Mine Warfare System (*Système de lutte anti-mine du futur - SLAMF*)/ Espadon demonstrator;
- the validation by high-speed rail tests of new decoys for wide-bodied aircraft (decoys with spectrum extended to the visible field and multi-spot decoys);
- the qualification of the payload of ELISA satellites.

In the efforts to identify key industrial capabilities within the DTIB, the DGA has also placed emphasis on the balance of relations between prime contractors and

subcontractors (SME-medium-sized enterprises), thereby contributing to the implementation of the SME Defence Pact. The DGA's support for 300 SMEs that are critical or strategic to existing or future programmes has been stepped up, along with the measures to support research and development destined for SMEs: creation of ASTRID-Maturation, which enables the technology transfer from laboratories to SMEs, and increased budget devoted to RAPID (Support system for dual innovation - *Régime d'appui aux PME pour l'innovation duale - RAPID*).

The second DGA Innovation Forum presented about one hundred of its innovative projects, 25 of which were presented in a concrete manner, including some European or world firsts.

The dialogue aimed at consolidating and integrating the major players in the defence industry at European or national level continued, notably with the restructuring of EADS defence and space activities, which will become Airbus Defence and Space on 2 January 2014 and the takeover

of SNPE by GIAT. 17 foreign-investment-in-France (IEF) files were processed, 11 of which were the subject of special measures to protect critical industrial capabilities.



Baudet-Rob, self-contained robot for logistical assistance. Astrid Project.

## The DGA finances €90 million on innovation projects:

64 RAPID projects, 39 ASTRID (special support for research and defence innovation) projects, 11 of which include an SME partner, 140 theses, 4 of which under joint Franco-British management, 14 Unique Interdepartmental fund (*Fonds unique interministériel - FUI*) projects. The DGA is also involved in the national research strategy and has continued its privileged partnership with the National Research Agency (*Agence nationale de la recherche - ANR*), contributing to 9 dual "societal challenges" run by the ANR and to the Descartes challenge on energy autonomy.

In total, the DGA and its research partners (ANR, OSEO, DGCIS (Directorate General for Competitiveness, Industry and Services), Defence Research Club) supported 270 new projects in 2013.





The Rafale programme federates all French industrial expertise tied to fighter aircraft (LPM 2014-2019).

**France reaffirms its top position on the global military equipment market**

## Support for export

### Exports of Military Equipment in 2013

Against a backdrop of budget cuts, it is essential for manufacturers in the Defence sector to find more outlets for exports to preserve their expertise. They have the assets to be well-positioned in the face of increasingly tough global competition: the level of technology and the operational performance of French equipment are recognized and France's choice of strategic independence is an asset in the eyes of the large importer states.

2013 was marked by the signature of several major military equipment contracts. While the final figure for total export orders in 2013 will not be known before May, the trend nevertheless appears to be positive, with an increase of over 30% compared with 2012.

In this way, France reaffirms its top position on the global military equipment market. Indeed, it is on the list of the largest exporter countries, with the USA, Russia, the United Kingdom and Israel, and it notably stands out from its European competitors because it has a diversified equipment offer that covers all capabilities.

## Support for SMEs

The SMEs in the defence sector represent about 5% of the total amount of direct military equipment exports, and much more if we factor in their role in the subcontracting of contracts won by the large groups. Although they play a crucial role in terms of innovation and preserving France's technological know-how, SMEs should further improve their export positioning.

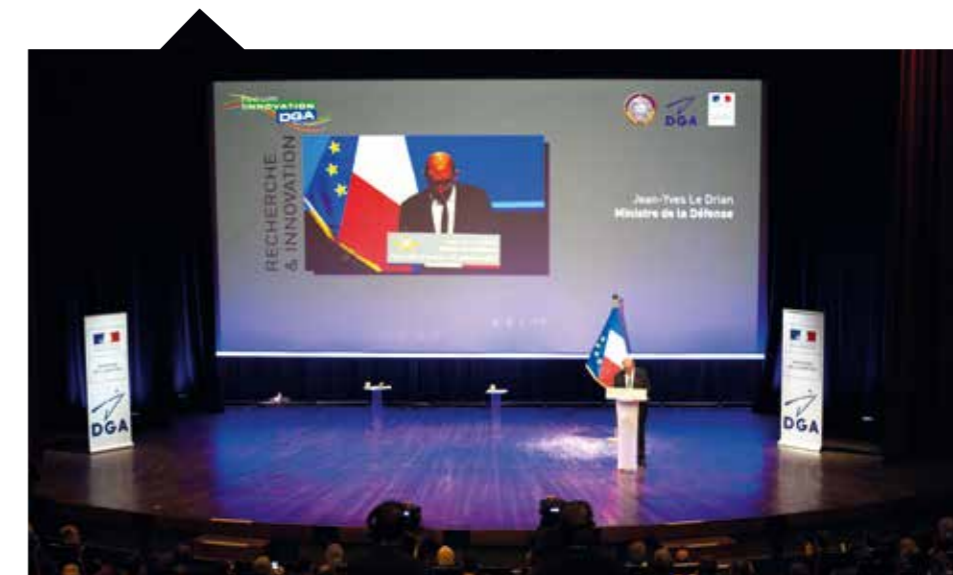
As a central player in the system of government support for defence exports, the DGA is particularly attentive to assist the SMEs in their efforts aimed at finding new outlets abroad. This is more particularly the role of the SME Export Days organized by the DGA in the French regions. In 2013, three events of this type were organized in Lyon, Rennes and Toulouse, in the presence of Mr Kader Arif, Minister in charge of Veterans' Affairs at the Ministry of Defence. In total, nearly two hundred SME and medium-sized enterprises were able to meet experts from the DGA and get concrete answers to their questions about existing export opportunities and the necessary steps to take in the different markets.

In this way the DGA actively contributes to the implementation of the SME Defence Pact launched in November 2012 by the Minister of Defence, which includes measures specifically geared to supporting exports. For instance, the DGA awarded certificates of proper performance to the SMEs who particularly distinguished themselves in connection with services for the Ministry of Defence.



"I would like our services to work closer with SMEs, in proximity to the areas they help stimulate."

Jean-Yves Le Drian, Minister of Defence, 2<sup>nd</sup> DGA Innovation Forum, on 21 November 2013.



## Export support

As part of the contribution to supporting exports and in accordance with international agreements, the DGA Quality Department provides official quality assurance services to guarantee to foreign government customers that the products produced have the same level of quality as those delivered to the French armed forces. In 2013, the Quality Department intervened in favour of 34 countries and international organizations.

## Intra-Community Transfers (TIC)

The Quality Department performs certification audits within the framework of the European regulations on Intra-Community Transfers, which enabled France to certify 4 companies: Messier Bugatti Dowty, Nexter Systems, Rockwell Collins France and Thales Avionics.

# Day-to-day partner of the armed forces



A400M: An incredible technological adventure, in which DGA experts participated at every stage of the programme's development, thanks to their know-how.

## Programmes



Airbus officially hands France its First A400M on 30 September 2013 at a ceremony attended by Jean-Yves Le Drian, Minister of Defence and Laurent Collet-Billon.

### A400M: delivery of first two aircraft

The DGA took delivery of the first production model of the A400M military transport aircraft on 1<sup>st</sup> August 2013. The aircraft bearing the serial number MSN7 was delivered the next day to the Orléans Bricy air base, where it will be used by the air force.

This first delivery, following by acceptance of a second aircraft on 6 November 2013, is the culmination of a long, complex and painstaking process between the industrial teams of Airbus Defence and Space, the official teams of 7 partner nations and those of the Organization for Joint Armament Cooperation (OCCAr).

The A400M is a military transport aircraft that is both strategic and tactical, featuring the latest technology, and unparalleled on the global market. Equipped with 4 turbo-props, the A400M is designed to carry up to 37 tons and perform all transport-related tasks, among other things, links between and within theatres, assault landings on makeshift fields, air-drop personnel and equipment even from a very great height, air refuelling or medical evacuations.

Seven customer nations are participating in the European A400M aircraft: Germany, France, Spain, United Kingdom, Turkey, Belgium and Luxembourg. France is the first country to take delivery of the A400M aircraft.

### A400M

The DGA Quality Department vouches for the quality of any subassemblies and equipment of aircraft produced in France and identified as potentially "risky" with OCCAr. Focal point of acceptance activities for French aircraft, it guarantees the aircraft configuration presented for acceptance. It also carries out quality assurance operations on supplies in connection with the setup of in service support for the aircraft in France.

### DELIVERIES

- 2 A400M
- 1 C160 Gabriel upgraded and 2 CASA CN235
- 1<sup>st</sup> Reaper system
- 11 Rafale
- 260 AASM (air-to-surface modular weapons) kits
- 6 Tigre HAD (Destruction Support), 4 NH90 TTH (Tactical Transport), 1 Caracal and 3 Cougar
- 3 SPRAT, 72 PPT, 4036 FELIN, 83 VBCI and 252 LRU rockets
- 256 Mistral RMV, 1 SAMP/T (Surface to Air Missile Platform/Terrain) system
- Commissioning of the Vigilant equipped with missiles M51

### Technical expertise for the A400M

In connection with the A400M, the DGA centres have carried out the following tests:

- TP400 propeller tests at DGA Propeller Tests (icing, combustion then performance tests), which notably allowed for its certification to civil standards by the European Aviation Safety Agency,
- environment and systems tests (lightning protection tests by DGA Aeronautics Techniques and electromagnetic compatibility work by DGA Information Control),
- characterization of infrared and electromagnetic threats by DGA Missile Tests and DGA Aeronautics Techniques,
- air mobility and air drop tests by DGA Aeronautics Techniques (NH90, EC725, TRM 10000 load) and parachute drop tests,
- software inspection of radar and electricity systems, and contribution to the characterization of the oxygen system by DGA Aeronautics Techniques,
- comprehensive tests and flight tests by DGA Flight Tests (evaluations of in-flight radar, guidance and navigation systems, particularly MLS and GPS), refuelling tests, ground tracking with night vision goggles, water ingestion tests on the Istres runway, etc.).

Finally, under the responsibility of the Architecture and aeronautics systems techniques, the DGA teams issue the flight permits and navigability documents and directly participate in inspection operations as well as drawing up the standard certificate.





## Launch of the FREMM *Provence*

The frigate *Provence*, third French frigate of the FREMM series (multi-mission frigate), was launched in Lorient on 18 September 2013.

To build the Multi-Mission Frigates (*Frégates multimissions* - FREMM), the manufacturers produced hull sections, then pre-equipped them with the main systems and equipment before assembling them. At the time of the launch of the *Provence*, the physical integration of these systems had advanced to over 80%, a level never attained for a ship at this stage of construction. This new launch is the outcome of a major team effort done by the DGA, the French Navy and manufacturers.

The Franco-Italian FREMM programme, led by OCCAr (Organization for Joint Armament Cooperation), is the largest naval programme ever launched in Europe. This technically innovative programme and these frigates will allow France to offer decisive capabilities for controlling the air/sea environment and carrying out in-depth strikes within a European coalition. They will notably provide a precision strike capability before 2015, with the naval cruise missile (MdCN) under development.



CERES: joint space component for the collection of intelligence data of electromagnetic origin.

## Notification of the CERES contract

At the end of 2013, the DGA notified a global agreement covering the stages to design, produce, take delivery in orbit and use the CERES system. The launch of the manufactory phase is scheduled for 2015.

CERES (Electromagnetic space intelligence capability - *Capacité de renseignement électromagnétique spatiale*) supplements the national means for research and interception of electromagnetic emissions. It directly helps to strengthen our intelligence capabilities, a priority of the military programming law.

CERES consists of a constellation of 3 satellites navigating in low orbit,

for location and identifying globally any emissions of electromagnetic origin, such as radar and telecommunications.

This system will give the French armed forces an extended surveillance capability without access constraints, which is not the case with conventional means.

It is the result of a long series of technological demonstrators (Cerise, Clémentine, Essaim, Elisa) and studies conducted for almost 20 years in collaboration with the CNES, which helped prove the project's technical feasibility and define the correct operational need.

## Notification of the Medium-Range Missile contract

On 3 December, the DGA notified the contract to develop and produce the MMP (Medium-Range Missile), one of the 20 new programmes of the military programming law.

This programme aims to supply a new system of ground combat missiles to replace the MILAN weapon system as of 2017. It will equip combat units in contact with the army and special forces for landing combat.

The target pool includes 400 firing points and 2,850 missiles. 175 firing points and 450 missiles will be delivered over the period 2014-2019.

The MMP is a versatile missile, based on the "fire and forget" concept, with the "man in the loop" capability. It allows forces to neutralize the different types of targets encountered in all theatres of operations with great precision, while at the same time controlling collateral damage and reducing vulnerability while firing.

The MMP is a missile with a high potential for export, like the MILAN in the past. It fosters the continued proficiency of the French missile sector (9,000 jobs), including some sensitive subcontractors, particularly in the sector of infrared seekers.

## Order and delivery of a Reaper system

By signing a Foreign Military Sales agreement with the American government in August 2013, France started the process to acquire a system of two unarmed drones, a medium altitude long endurance (MALE) MQ-9 Reaper Block 1 in order to meet an urgent operational need in the Sahel. The DGA took delivery of the two drones on 17 December 2013 and sent them to the theatre of operations.

This acquisition mobilized much of DGA's expertise, notably to prepare the system's insertion into the French military system (connection to the information operating system, satellite link, compatibility between the laser designator and French arms, support, etc.) and to establish the flight permit and regulatory compliance.

This delivery is the first concrete action marking the Ministry's intention to make up for its capability gap in the area of drones. For instance, the military programming law plans to equip France with 4 systems of second generation MALE (Medium Altitude Long Endurance) drones (12 unmanned aerial vehicles) by 2019.

## Success of the first qualification firing of the Naval Cruise Missile at DGA Missile Tests' Landes site

The DGA successfully carried out the first qualification firing of the MdCN (Naval Cruise Missile) on 1<sup>st</sup> July 2013. Done at the Biscarosse (Landes) site of the DGA Missile Tests centre, this firing is representative of a shot from a frigate.

The chosen firing theme was particularly demanding since, besides the range objectives, it helped validate the performance in terms of unmanned navigation and terminal guidance by infrared recognition.

The FREMM will be equipped with the MdCN as of 2014, and the Barracuda submarines by 2017. Endowed with a range in the 1,000 kilometre-class, the MdCN is designed to hit objectives located deep in enemy territory. It is complementary to the Airborne Scalp cruise missile, from which it is derived.

On board warships positioned, in an extended way, at a safe distance in international waters, ostensibly (frigates) or discretely (submarines), the MdCN is adapted to missions to destroy infrastructures of high strategic value.



1<sup>st</sup> July 2013. Qualification firing of the MdCN.

## Theatre ballistic missile defence: new success of the SAMP/T

For the first time in an architecture involving NATO, the Italian army and the French air force successfully intercepted a target representative of a theatre ballistic missile on 6 March 2013, thanks to their SAMP/T (Surface to Air Missile Platform/Terrain) common medium-range air defence system. After about 300 kilometres of ballistic flight, the target fired from an aircraft was destroyed by an Aster 30 interceptor missile.

This technical-operational test firing was jointly conducted by the 4th artillery regiment of Mantua (Italy) and the centre for military air experiments (*Centre d'expériences aériennes militaires* - CEAM) in Mont-de-Marsan. It mobilized important resources from several DGA centres as well as NATO resources.

This success is another step forward in demonstrating the SAMP/T weapon system's capabilities to counter a theatre ballistic threat in a NATO context. It follows two successful firings against the same type of threat in October 2010 and November 2011.

Baptised *Mamba* by the French air force, the main strengths of the SAMP/T are: the 360° defence area, its range, the missile's agility, the modularity and the capacity to simultaneously treat all types of modern airborne target.





## Launch of the F3-R Rafale standard

On 30 December, the DGA notified the work to develop and integrate a new standard Rafale F3-R to Dassault Aviation.

The management rationale of the Rafale programme depends on continuous developments to adapt the aircraft by successive standards as the need evolves. This new standard is notably based on the integration of the long-range Meteor missile and the next generation PDL NG laser designation pod, but also on the necessary developments to deal with the changing environment by 2018 (improvements of the weapons and navigation system, data links, RBE2 radar and the electronic warfare system SPECTRA, etc.). All of these functional and material changes consolidate the omnireole nature of the Rafale.

## New operational emergencies for our deployed forces

Once again, 2013 was marked by a sustained operational activity, notably in Africa with the Serval operation and then the Sangaris operation. On that account, the DGA maintained the interrelation set up with the armed forces in general in order to be in a position to adapt the equipment to the theatres of operations.

The "operational emergency" procedure was again successfully put to use. For instance, the DGA supplied emergency equipment allowing the entire chain of command to broadcast information carried on our tactical L16 data links in real time, as far as France. Furthermore, French soldiers' exposure to threat was lowered thanks to the adjustments made to Armoured Infantry Fighting Vehicle (*Véhicule blindé de combat d'infanterie - VBCI*) and AMX10RC to make them easier to use at night. Finally, improvements in terms of protection or engagement were made on special forces' aircraft.

## Risk control

For several years the DGA has applied a policy of excellence in the management of its programmes, through ISO 9001 and more recently CMMI procedures, in order to guarantee delivery of equipment in compliance with the armies' requirements, while controlling costs and completion deadlines. In this context, risk control becomes essential at all stages of a military equipment operation.

The risk management policy is implemented from the first stages of the programmes. It concerns risks of any kind: technical, financial, industrial, security, etc. and aims to consolidate the DGA's commitment in terms of performance, costs and deadlines. For instance, the programme managers call on the expertise available in DGA centres for the technical aspects. In the development stage, the professionalism of the centralized purchasing department guarantees the regularity of purchasing procedures. In the production stage, the DGA's Quality Department ensures the conformity of any industrial work. Finally, in the qualification stage of the systems and each of their developments, the DGA's Technical Department uses its technical authority to rule on the safety conditions tied to the use of the systems, for their users or for the system itself.

## Navigability

Navigability is defined as the condition of a product (aircraft, engine, etc.) that allows its use while respecting the safety objectives defined with regard to the persons on board or to third parties. The navigability requirements are one of the components of aviation safety, along with operational rules, including qualification of crews, air traffic rules and requirements for airport hubs.

This concept comes from civil aviation. Originally, the safety objectives associated with navigability were factored into the management of aeronautics programmes, but outside of any specific regulatory framework. This lack of formalization was revealed by the requirements of regulation 2003/1592/EC, which asked STATES to put in place a system as similar as possible to the civil system. Because of its recognized know-how in the management of aeronautics programmes and the related technical skills, the DGA was the logical choice as the organization to take on the initial certifications and supervision of navigability, tasks assigned to the technical authority. The decrees and ministerial orders concerning navigability were updated in 2013, supplemented by a 4th ministerial order relative to maintaining navigability. The government organization was supplemented by the creation of the State Department of Aeronautics Safety (DSAE) in charge of maintaining the navigability of individual aircraft.



The DGA took delivery of a system of two unarmed drones MQ-9 Reaper Block 1 on 17 December 2013.

The DGA produced over 1,300 technical instruments concerning navigability in 2013, issued 81 navigability orders, awarded 23 certifications of type, issued 8 design authorizations and 4 production authorizations.

## Supplier evaluation

The evaluation of suppliers involved in military equipment operations falls under the responsibility of the DGA's Quality Department. This department intervenes on behalf of the DGA's programme departments, the ministry's support departments, export customers and the CNES.

Unique in the ministry and the government, it is dedicated to gathering and analysing any proof of conformity with contractual requirements and to the quality of the products made by defence manufacturers. It keeps monthly quality indicators on manufacturers' output

and establishes the track record of the main defence manufacturers every year. With its thorough knowledge of the industrial risk, it contributes to risk control in the programmes.

## ORDERS

- Continued production of CONTACT (Digital Tactical and Theatre Communications Programme)
- Launch of ATL2 upgrade
- Notification of Rafale F3 contract and IPDL NG amendment
- Notification of CERES contract
- Notification of the "MUSIS ground segment"
- Notification of the COMSAT NG contract
- Launch of Medium-Range Missile (MMP) production/ notification of MMP contract
- Notification of Transoum contract
- Order for 9 ECUME NG small craft
- Contract for services to maintain the capability of the SDTI system
- Order for 3 Multi-Mission Ships (B2M)
- Order for 5 upgraded Cougar aircraft
- Order for 34 TTH
- Order for 220 Air to Surface Modular Weapons (*Armement air-sol modulaire - AASM*) kits
- Notification of follow-up in service M88 stage 2

# Driving force for realistic European construction




The Sterenn Du surface drone demonstrator has already shown the validity of the SLAMF concept (future anti-mine warfare system).

### CSDP

Throughout the year the DGA helped to prepare the European Council on 19 and 20 December 2013, part of which was devoted to reviving the CSDP (Common Security and Defence Policy). The DGA has put a lot of effort into supporting and influencing the preparatory work done by the European Commission through its communication *Towards a more competitive and efficient security and defence sector* and that of the High Representative, Catherine Ashton, in preparing her report, particularly on the chapter about strengthening the defence industry. More particularly we can retain the assertion of the essential contribution of the European industrial and technological defence base to Europe's strategic independence, the necessity of supporting Research & Technology on key technologies through the Horizon 2020 programme and a preparatory action to implement on CSDP-related research.


## Cooperation


### Active bilateral cooperation

 Appreciable progress was made in the Franco-British relationship in 2013. Three years after the Lancaster House Treaty was signed, several projects have reached maturity. Work continues in the field of combat drones with the preparation of the FCAS DP project (Future Combat Air System Demonstration Programme). The first phase of the work should be launched jointly in 2014. As for the tactical Watchkeeper drone, it was tested by the DGA and the army in spring 2013. On the future maritime mine warfare system (MMCM), the work accomplished makes it possible to envisage signature of the MoU in 2014, which will provide the framework for our common industrial work. In the missile field, 2013 saw the finalization of the programme to develop the light anti-ship missile (ANL), henceforth included in the LPM. Finally efforts have continued towards a better pooling of R&T efforts on key technologies and to identify new areas of capability cooperation.

 The 50th anniversary of the Elysée treaty between France and Germany was celebrated in January 2013. In that momentum, the common work aimed at seeking cooperation in the military equipment field in 2013 notably concerned MALE (Medium Altitude Long Endurance) drones and space observation. Other areas of common interests like anti-missile defence and R&T were also explored.

 The cooperation between France and Italy continued based on the conclusions of the Summit of December 2012, particularly in the field of software radio, missiles and space. The second Franco-Italian defence industry day in Rome in April 2013 fostered mutual understanding between industrialists and generated proposals that may give rise to technological cooperation, especially in the sector of maritime surveillance, battleground digitization and land vehicles.


 A first defence industry day was held in Spain in May, attended by many players in the field from both countries. It developed the reciprocal knowledge of French and Spanish industrial and technological defence bases.

 Our relationship with Poland was strengthened in 2013 with the signing of two letters of intent at the ministerial level, in the naval and air-land field. They further confirm the dynamic and perspectives of this bilateral cooperation.

### Concrete multilateral cooperation

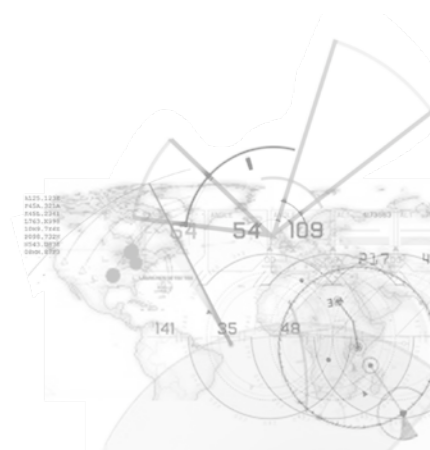
 During the year, France, Poland, Spain and Italy finalized the contractual and cooperation framework allowing OCCAR to launch the preparatory activities for the second phase of the ESSOR (European Secure Software defined Radio) project in December 2013, a step forward that concretizes the continued development of an independent European software radio programme.

 The partner nations reached agreement on common support for the A400M and a programme arrangement came into effect in July 2013. The technical Franco-German arrangement to cooperate on the technical and tactical training of crews and maintenance personnel was signed in September 2013.

 In 2013, France chaired the G5, the informal group of five powers in the military equipment field (Germany, USA, France, Italy, United Kingdom) in NATO. The DGA contributed to the NATO works concerning territorial ballistic missile defence (DAMB), the future ISR architecture (Intelligence, surveillance, reconnaissance) or again the interoperability of forces.



France chaired the G5 (Germany, USA, France, Italy, United Kingdom) in 2013.



# Key expert with a smaller structure

The DGA cyber-secures defence equipment programmes.

**18 internal or external evaluation boards** were held in 2013.

A good year for high-level expertise: 15 employees were concerned by this qualification, for a period of 4 years; besides their role as technical adviser, they are also tasked with training younger staff. These 15 qualifications come from 8 renewals and 7 new applications.

Every year, DGA experts publish in specialized reviews contributing to the recognition of the level of expertise and the influence of the institution.

## DGA expertise

The DGA's technical expertise is not just used to see to the successful conclusion of large-scale programmes. It is also used to prepare for the future by identifying essential technologies, in the long term, and by arranging for the necessary developments to acquire those technologies. This expertise obviously counts on the personnel, but also on major testing and evaluation means. It mobilizes the skills of the different professions.

Continued technical proficiency is a constant concern of the DGA. With that goal in mind, several years ago the DGA set up specific entities. These entities, like the evaluation board, call on external expertise to measure the positioning of DGA expertise and recommend changes. Objective: to always have the best response to future challenges. An evaluation board evaluates the skills of a technical profession every 2 or 3 years.

The DGA's high level of expertise is also concretized every year by the qualification or re-qualification of technical personnel. For instance, these high level, recognized experts are tasked with coordinating and developing the areas of expertise they

represent within the DGA. The DGA draws up medium-term plans to bring the experts it considers essential to that level, either due to the departure of the expert in place or changes in the technical requirement.

Finally, the DGA maintains a network of relationships with academic (industrial or institutional) laboratories and manufacturers. This helps to maintain and identify new skills to develop. The DGA regularly participates in national and international symposiums.

The DGA adapts to changes in its environment: change of threat, for example those involving the cyber-defence and intelligence fields, reaffirmed concept of systems of systems, advent of simulation in all phases of a programme, from conception to qualification, are all so many changes that demand a continuous adaptation of the organization, like the tools and methods around the system engineering, widely used in the world of civil industry.



New equipment 2013: the P4, a highly secure operational laboratory.

## A functioning including modernization

Completion of the measures resulting from the RGPP (General review of public policies - *Révision générale des politiques publiques*).

In terms of organization and establishments, 2013 marks the end of the reform measures decided five years ago as part of the general review of public policies (RGPP).

For instance, the technical department's activities, which represented 15 centres at 21 sites in 2008, are now concentrated in 9 centres specialized by major technical areas, at 15 sites. The last operations carried out in 2013 consisted in reinstalling the staff of DGA Missile Tests Gironde into new buildings at the Saint Médard site, finishing the reinstallation of Angers' resources into new buildings of DGA land techniques in Bourges, and in completing the transfer of the activity of the Vernon ballistic and aerodynamic research laboratory to DGA Data Control in Bruz. The quality department, which is in charge of quality assurance for any equipment supplied by manufacturers under military equipment contracts, had 49 establishments in 2008.

It now has 25 establishments with the closure of the Papeete, Châtelleraut, Rennes and Saint Etienne sites.

The investment required to convert the infrastructures at the host sites came to €83 million over 2008-2013, in accordance with initial forecasts.

The effect of these changes on the level of technical skills necessary for the smooth running of military equipment operations was carefully managed, with maximum priority given to fields where the need for expertise remained important during the transfers, for example, to commission M 51 and ASMP-A missiles.

In total, over 950 outplacements occurred, mainly in Vernon and Angers, and each individual situation was handled carefully and appropriately.

Finally, the organization of aids has changed completely, notably with the linkage of DGA centres and ministerial aid operators in each relevant field. In these fields, 2013 saw the system's stabilization with the DGA and the service providers (operators) clarifying customer-supplier relations in compliance with ISO 9001 practices.



# A strategic tool for talent management

It is necessary for skills to be maintained at the highest level for the DGA to perform its duties, particularly in technical fields, project management or the support provided to projects.

These skills form a unique set, the development and availability of which are key factors in the ministry's ability to build a system of defence that meets the objectives set out in the *White Paper on Defence and National Security* and the *attendant Military Programming Act (LPM)*.



Their management by the DGA is based on a strategic outlook with a sliding horizon of 6 years of all the needs for skills required to successfully carry out the tasks assigned to the DGA.

This outlook, set out according to the 51 professions that structure all of the DGA's skills, is updated annually in the form of the Strategic Human Resources Plan (PSRH), which is the foundation point of all management planning for employment and skills (GPEC) implemented by the DGA.

For its implementation, the DGA relies on a series of processes designed with an ISO 9001 approach and supported by specific computer applications to provide decision-making aids to meet the organization's challenges in the human resources field.

Breaking the work down by level, job function and geographic location, in an approach that brings together HR and business managers, makes it possible to align staff profiles, career paths and operational needs within the framework of authorized staffing levels. So the GPEC is not just an administrative management tool; it is also a tool to support career paths.

With this rationale, staff support (analysing mobility goals, mapping the skills acquired, building personalized career paths, offering bridges to professions, proposing or even adapting training courses, etc.) is a key area to guarantee the development of individual skills while meeting DGA needs at the same time.

The DGA's staffing approach fits into the overall rationale currently being implemented at ministerial and interdepartmental level with, in particular, the formulation of a unique frame of reference for ministerial jobs and professions (REM).

## Mobility and skills

Vacancies are filled in conjunction with individual management of skills and career paths. Irrespective of staff members' status or professional attachments, access to posts is based on the abilities developed and the skills acquired by staff members throughout their career, through functional mobility and a diversified, successful experience in different posts.

Everyone can be assisted by a career advisor from HRD, whose role is to help staff members build their career path by giving them real visibility on all vacancies fitting their profile and their aims, as well as the departments' expectations and requirements.

## Talent management

Talent management is a personal management tool used to detect men and women with a promising managerial profile. The purpose of this approach is to prepare them to fill posts with responsibilities by closely following their career, mobility and special training.

In 2013, over 60 evaluations were conducted to that end.

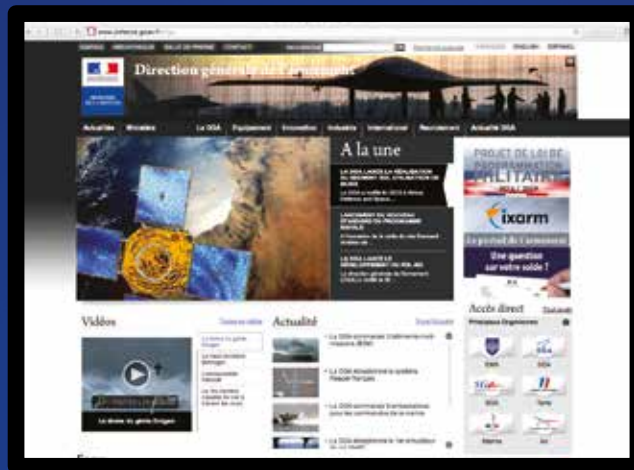
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